

FLASHING DART

BACKGROUND OF THE INVENTION

1. Field of the Invention

The invention relates to a dart, and particularly to a dart that flashes light for a period of time when the dart strikes a dartboard.

2. Description of Related Art

Throwing darts is a leisure activity that is entertaining and competitive so throwing darts is popular. A player throws a dart at a dartboard that has multiple areas representing different points. The player scores points corresponding to the points assigned to the area on the dartboard in which the dart strikes. Players may compete head-to-head, or teams of players may compete with other teams.

Conventional darts simply consist of a barrel with two ends, a point attached to one end of the barrel and a shaft with a tail attached to the other end of the barrel, and a flight attached to the tail of the shaft to provide stability to the whole dart. Therefore, conventional darts do not have any extra features such as light or sound when the dart strikes the dartboard.

With reference to Fig. 6, a conventional flashing dart was invented to create more fun in a dart game. The conventional flashing dart is composed a hollow barrel (30), a battery (36), a point (32), a lighting element (34), a transparent shaft (38) and a stabilizing flight (39). The hollow barrel (30) has a front end (not numbered) and a rear end (not numbered). The battery (36) is mounted inside the barrel (30). The point (32) retractably mounted on the front end of the barrel (30). The lighting element (34) is embedded in the

1 rear end of the barrel (30). The transparent shaft (38) with a distal end is
2 attached to the rear end of the barrel (30). The stabilizing flight (39) is
3 attached to the distal end of the shaft (38).

4 The barrel (30) is made of conductive material and has a channel
5 (not numbered) axially defined through the barrel (30). The battery (36) is
6 mounted inside the channel and has one electrode (not numbered) connected
7 to the lighting element (34) and the other electrode (not numbered)
8 operationally connected to the point (32). The lighting element (34)
9 connected to the battery (36) inside the channel is further in electrical contact
10 with the barrel (30). The point (32) protruding from the barrel (30) is also in
11 electrical contact with the barrel (30) and has a coil spring (33) mounted
12 around part of the point (32) inside the channel to provide a restitution force
13 to the point (32).

14 When the conventional flashing dart is thrown, the dart acquires
15 momentum. When the dart hits the dartboard, the dart's momentum
16 compresses the coil spring (33) and causes the point (32) to be pushed into
17 the hollow barrel (30) and make contact with the electrode of the battery (36).
18 With the point (32) in contact with the electrode, an electrical circuit is
19 closed and turns on the lighting element (34). When the dart's momentum
20 dissipates, the coil spring (33) pushes the point (32) back to an original
21 position thereby breaking the electrical circuit to save electrical power.

22 However, the conventional flashing dart only lights up very briefly
23 when the point (32) contacts with the battery (36). The flash of the flashing
24 dart does not persist and is not attractive enough for players.

1 The present invention has arisen to provide a flashing dart to obviate
2 the drawbacks of the conventional flashing dart.

3 SUMMARY OF THE INVENTION

4 A first objective of the present invention is to provide a flashing dart
5 that is activated by inertia force.

6 A second objective of the present invention is to provide a flashing
7 dart that emits lights for a preset period of time.

8 Further benefits and advantages of the present invention will become
9 apparent after a careful reading of the detailed description in accordance with
10 the drawings.

11 BRIEF DESCRIPTION OF THE DRAWINGS

12 Fig. 1 is a partially cross-sectional view of a flashing dart in
13 accordance with the present invention;

14 Fig. 2 is a schematic circuit diagram of an electrical circuit used in
15 the flashing dart in Fig. 1;

16 Fig. 3 is a partially cross-sectional view of the flashing dart as in Fig.
17 1, showing the flashing dart is in action when just strikes a dartboard;

18 Fig. 4 is a partially cross-sectional view of another embodiment of
19 the flashing dart in accordance with the present invention;

20 Fig. 5 is a partial cross-sectional view of the flashing dart as in Fig 4,
21 showing the flashing dart is in action when just strikes a dartboard; and

22 Fig. 6 is a partially cross-sectional view of a conventional flashing
23 dart in accordance with the prior art.

24 DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

1 With reference to Fig. 1, a flashing dart in accordance with the
2 present invention comprises a barrel (10), a point assembly (12), a
3 transparent shaft (13), a circuit board (14), a lighting element (16), a battery
4 (17) and a resilient element (18).

5 The barrel (10) is hollow, is made of conductive material and has a
6 front end (not numbered) and a rear end (not numbered). The front and rear
7 ends of the barrel (10) have internal threads (not numbered).

8 The point assembly (12), partially or wholly made of conductive
9 material, has a point (122) and a point plug (124). The point (122) is attached
10 axially to the point plug (124) and may be either conductive or non-
11 conductive material. The point plug (124) is made of conductive material and
12 has a front end (not numbered) and a rear end (not numbered). The rear end
13 has an external annular thread (not numbered) that screws into the internal
14 thread at the front end of the barrel (10). The front end of the point plug (124)
15 has an axial hole (not numbered) with an internal thread (not numbered). The
16 point (122) is screwed into the internal thread of the point plug (124) in the
17 axial hole in the point plug (124).

18 The transparent shaft (13) is screwed into the internal thread at the
19 rear end of the barrel (10). The transparent shaft (13) further has a tailing end
20 (not numbered) and a stabilizing flight (not numbered) attached to the tailing
21 end.

22 With further reference to Fig. 2, the circuit board (14) is mounted
23 inside the barrel (10) and has an integrated circuit controller (142) mounted
24 on the circuit board (14). The battery (17) is mounted movably inside the

1 barrel (10) and has two electrodes (not shown). One electrode of the battery
2 (17) is directly and electrically connected to the integrated circuit (14), and
3 the other electrode is connected electrically to the barrel (10) by abutting the
4 resilient element (18) mounted between the battery (17) and the point plug
5 (124). The circuit board (14) further connects to the lighting element (16)
6 that is mounted close to the transparent shaft (13) and has a resilient
7 conductive arm (15) extending from the circuit board (14) to make electrical
8 contact with the barrel (10). Thereby, an electrical circuit in the flashing dart
9 is completed.

10 Additionally, the resilient element (18) is preferred to be a spring and
11 the lighting element (16) is preferred to be a Light Emitting Diode (LED).

12 When the flashing dart is not in action, the battery (17) abuts the
13 circuit board (14) but the IC controller (142) is dormant. Therefore,
14 electricity does not pass to the lighting element (16) and thus saving
15 electricity.

16 When a player throws the flashing dart, all elements of the flashing
17 dart acquire momentum. With reference to Fig. 3, the battery (17) moves
18 toward the front end of the barrel (10) when the flashing dart strikes a
19 dartboard because the momentum in fixed elements of the flashing dart are
20 stopped quickly by the resistive force of the dartboard and the momentum of
21 the battery (17) is dissipated slower due to the resilient element (18).

22 Consequently, the battery (17) temporarily detaches from the circuit board
23 (14), and power to the integrated circuit controller (142) is cut off. However,
24 a restitution force stored in the resilient element (18) when battery (17)

1 moves forward and compresses the resilient element (18) causes the battery
2 (17) to move back and make contact with the circuit board (14) again.
3 Thereby, the electrical circuit is closed again, and the circuit board (14)
4 transmits a signal to reset the integrated circuit controller (142). Upon receipt
5 of the signal, the integrated circuit controller (142) provides power to the
6 lighting element (16) and causes the lighting element (16) to emit light for a
7 specific period of time. At the end of the specific period of time, the
8 integrated circuit controller (142) shuts off power to the lighting element (16)
9 and becomes dormant to save electricity. Additionally, the integrated circuit
10 controller (142) can control flashing, blinking and color variation features of
11 the lighting element (16).

12 Further with reference to Figs. 4 and 5, another embodiment of the
13 flashing dart has the resilient element (18) mounted between the battery (17)
14 and the integrated circuit board (14). In a steady-state condition, the resilient
15 element (18) presses the battery (17) against the point plug (124). When the
16 flashing dart is thrown initially, the inertia of the battery (17) causes the
17 battery (17) to compress the resilient element (18) and temporarily separate
18 from the point plug (124). When the resilient element (18) presses the battery
19 (18) against the point plug (124) again, the electrical circuit is closed, and the
20 integrated circuit controller (142), which previously was in dormant, is
21 activated again and makes the flashing dart emit light for a specific period of
22 time.

23 According to foregoing description, the flashing dart in accordance
24 with the present invention emits lights for a specific period of time or further

1 has more entertaining features such as blinking or color variations to make
2 the flashing dart interesting and attractive.

3 Although the invention has been explained in relation to its preferred
4 embodiment, many other possible modifications and variations can be made
5 without departing from the spirit and scope of the invention as hereinafter
6 claimed.